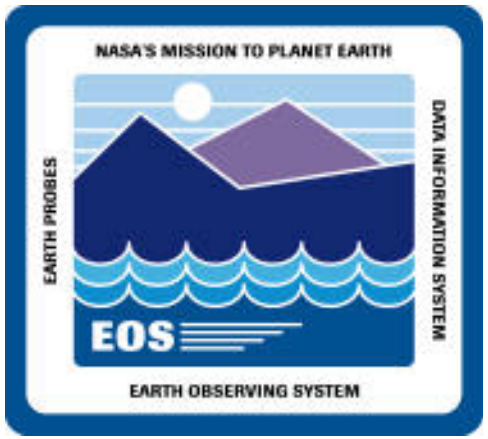
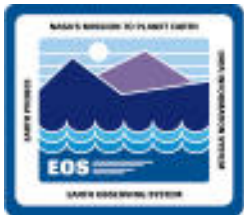


DIM/LIM Configuration

Sreedhar Muppalla

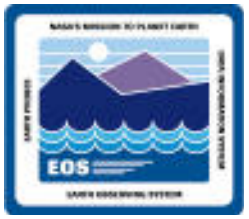
18 January 1996

Presentation Overview



1. Data Management Subsystem Overview
2. Data Management Software Architecture
3. Data Dictionary and Configuration Contents
4. Information Manager Comparisons
5. LIM, DIM, and Gateway Configurations
6. Operator Activities
7. Scenario for LIM/DIM Configuration

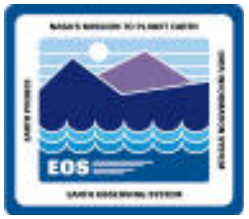
Data Management Subsystem Overview



Data Management Subsystem composed of:

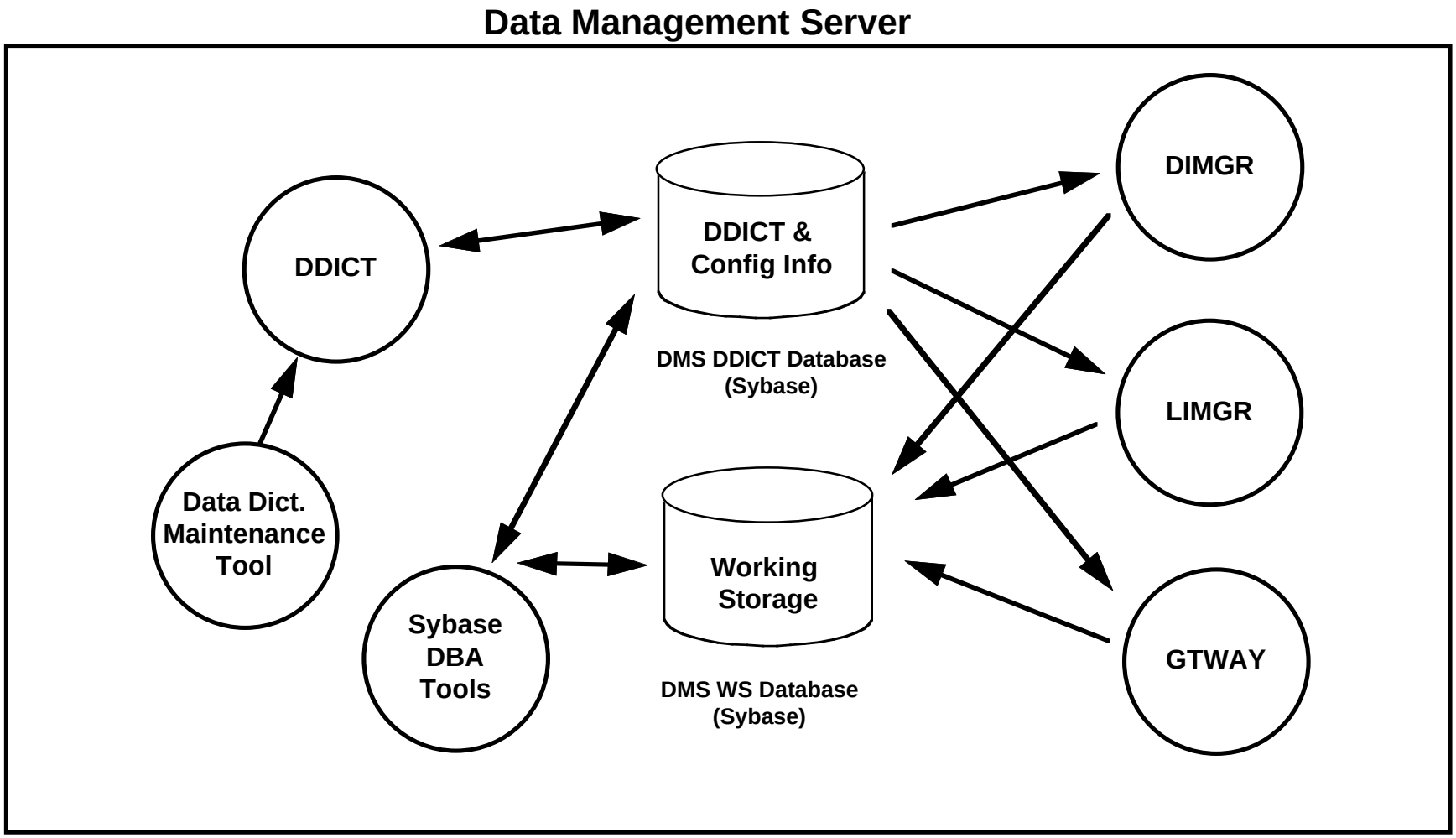
- Data Dictionary Service (DDICT)
  - Supports the querying and maintenance of attributes, their domains, and definitions.
- Information Manager (IM)
  - Supports common functionality of LIM, DIM, and Gateway
  - LIM, DIM, and VO Gateway are derived from IM
  - Provides class library for developing IMs
  - Local Information Manager (LIMGR)
    - •Supports the decomposition of searches and other requests (such as browse and dispatches these requests to other search agents within a site such as SDSRVs and V0 Gateways.)
  - Distributed Information Manager (DIMGR)
    - •Supports the decomposition of searches and other requests (such as browse and dispatches these requests to other search agents across sites.)
  - V0 Gateway (GTWAY)
    - •Supports the decomposition of search, browse, and order requests to V0 IMS servers at a DAAC.

Data Management Subsystem Overview (cont.)

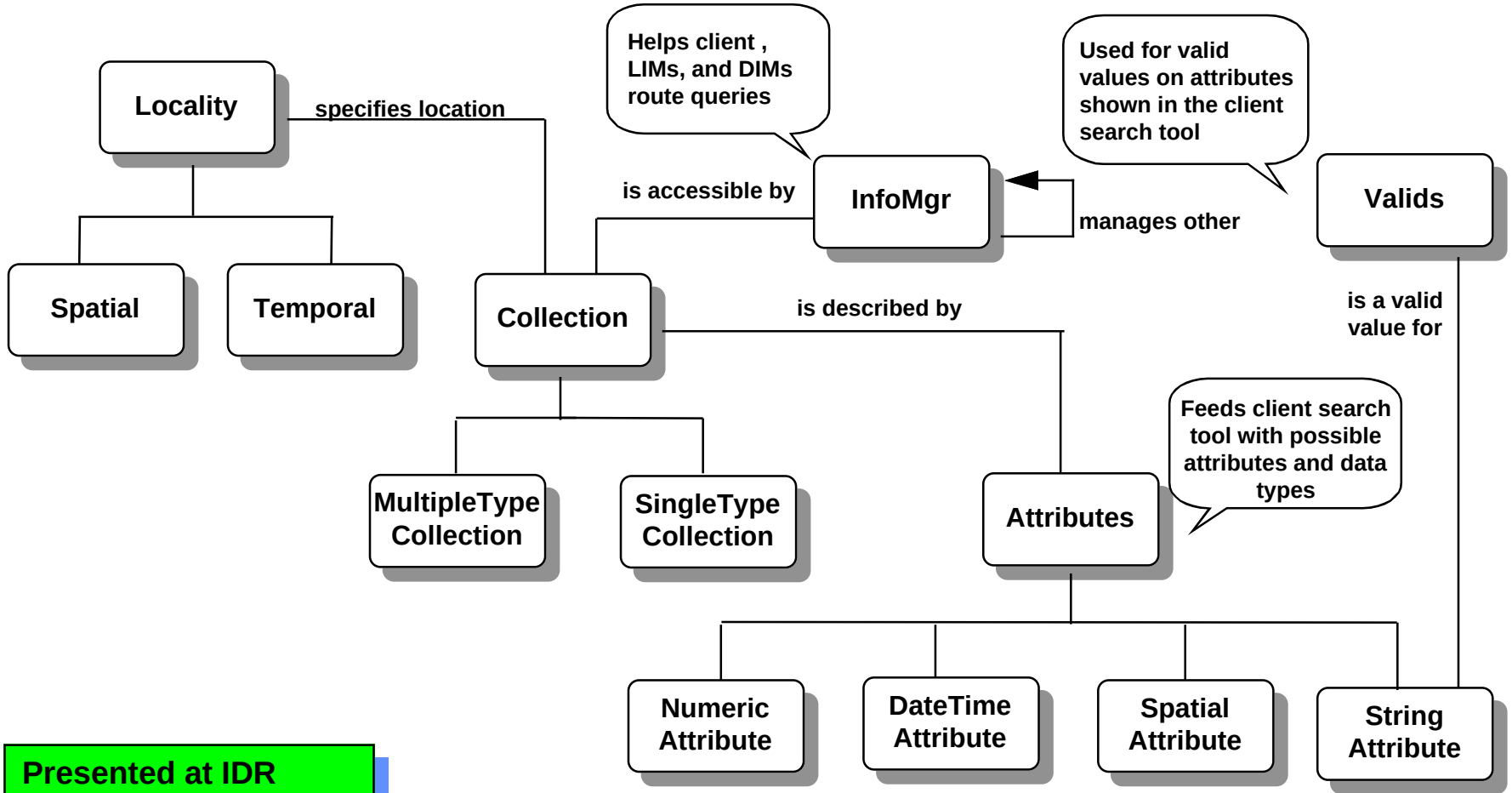


- **Data Management Hardware (DMGHW)**
  - **Manages/runs both the Interoperability subsystem software components and the Data Management Subsystem software components.**
  - **Hardware consists of:**
    - **1 server with multiple CPUs**
    - **3 workstations (DBA, Data Specialist, and User Support)**

Data Management Software Architecture



Data Dictionary & Configuration Contents

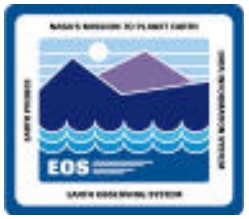


Presented at IDR
For details, reference:
305-CD-023-001

Information Manager Comparisons

Component	LIMGR Characteristics	DIMGR Characteristics	GTWAY Characteristics
Client Interface	Common Session = DOF	Common Session = DOF	Common Session Model = DOF for V1 clients and sockets with ODL for V0 clients
Internal Request Representation	Common Model	Common Model	Common Model
Internal Result Set	Common Model	Common Model	Common Model
Mapping Layer	Maps ECS Attributes to Local Attributes	Not Needed	Maps ECS Attributes to V0 Attributes
External Client Interface	Common Session to SDSRV, DDSRV, & GTWAY	Common Session to LIMGR & SDSRV	V0 ODL Interface & Common Session Model to SDSRV

LIM Configuration



One LIMGR at each DAAC, configured to access the one SDSRV, DDSRV, and V0 GTWAY colocated at that DAAC.

Configuration Options:

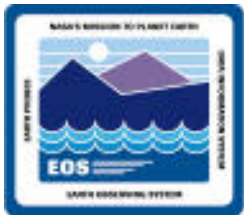
1A Make Advertisements for SDSRV and DDSRV private so only access to the DAAC is through the LIMGR.

- **Features:**
  - **Can control the pull side user access more effectively if one entry point. One monitoring point for user requests.**
  - **Performance and resource penalty for queries that may have been able to skip the LIM route.**

1B Make Advertisements for SDSRV and DDSRV public as well as LIMGR

- **Features:**
  - **Eliminates bottleneck at LIM by allowing direct connection from client to SDSRV.**
  - **Lacks the ability to monitor requests from a single point.**

LIM Configuration (cont.)



LIM Configuration Options (cont.)

2A Advertise all holdings as one collection (a multiple type collection that is a collection of the collections at the data server)

- **Features:**
  - **Gives the user one view of the holdings of the DAAC.**
  - **User has to dig to a lower level in the data dictionary to find the individual collections at the data server.**
  - **One interpretation of valid value or term.**

2B Advertise the LIM services as just another access to the data server collections

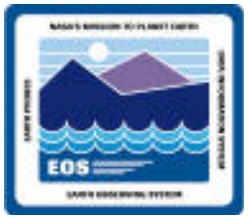
- **Features:**

  Gives the user insight to each individual collection directly at the LIM level.

  Multiple entry points to access the same collection.

Baseline configuration: options 1B & 2B

DIM Configuration



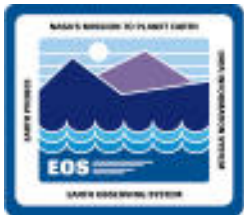
Baseline Configuration:

- **One DIMGR at each DAAC with global access to all LIMs and public SDSRVs and DDSRVs.**

Configuration Options:

- **Same configuration options available as the LIMGR in terms of the advertisements and collections.**
- **Can add additional DIMGRs to limit the scope to less collections and information managers. For example, one DIMGR might be ECS DAACs only, where another might be for international partners, etc.**
  - **Use this option for performance by providing redundant services.**

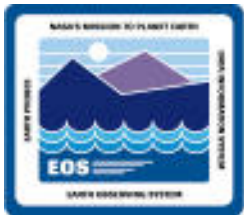
GTWAY Configuration Baseline



One GTWAY per DAAC encompassing all the holdings accessible through the V0 IMS Server at that DAAC.

Services accessible only through the LIMGR.

Operator Activities Related to Data Management



Configuration of LIMGR, DIMGR, and GTWAY to provide synchronization with collection information exported from SDSRVs or external data providers.

- **Notification of changes can be detected through subscriptions on Data Dictionary inserts, updates, or deletes.**

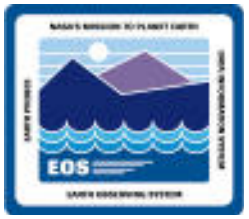
Maintenance of Sybase and Replication Environment

- **Monitor Replication Environment for errors on replication transactions from other sites.**
- **Coordinate with other sites upon error detection of replicated transaction**

Monitor requests

- **Check for consistency of schema information with data server when query error rates are increasing.**
- **Monitor system load.**

Maintaining DIM/LIM Configurations with Data Server



Scenario for new collection (ESDT) at Data Server:

- **Step 1: Data Specialist defines new ESDT in Data Server and Data Server administration tools send new ESDT information to Data Dictionary and Advertising Service.**
- **Step 2: DDICT service receives schema information and marks it private so clients do not see new information yet. Same for Advertisments.**
- **Step 3: Sybase replicates the information to the other DAACs.**
- **Step 4: DBA receives notification of new collection in DDICT database. DBA starts Data Dictionary Maintenance Tool and looks for collections specified in the notification.**
- **Step 5: DBA/Data Specialist links the new collection to the LIMGR and DIMGR configuration. The Data Dictionary Maintenance Tool updates the advertising service if necessary.**
- **Step 6: DBA/Data Specialist makes advertisements and schema information public at the appropriate time (such as when sufficient data exists to make it useful to a user).**

Maintaining DIM/LIM Configurations with Data Server